



Green Infrastructure in Hampton Roads

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Structure of Presentation

Southern Watershed Area Management Program

- Brief Project Overview
- Implementation Actions

Regional Green Infrastructure Project

- Brief Project Overview
- Implementation
- Future Directions



Southern Watershed Area Management Program



SWAMP Overview

The Southern Watershed Area Management Program (SWAMP) is a collaborative effort involving:

- the Cities of Chesapeake and Virginia Beach,**
- the Hampton Roads Planning District Commission (HRPDC),**
- the Virginia Coastal Program,**
- and the National Oceanic and Atmospheric Administration (NOAA).**





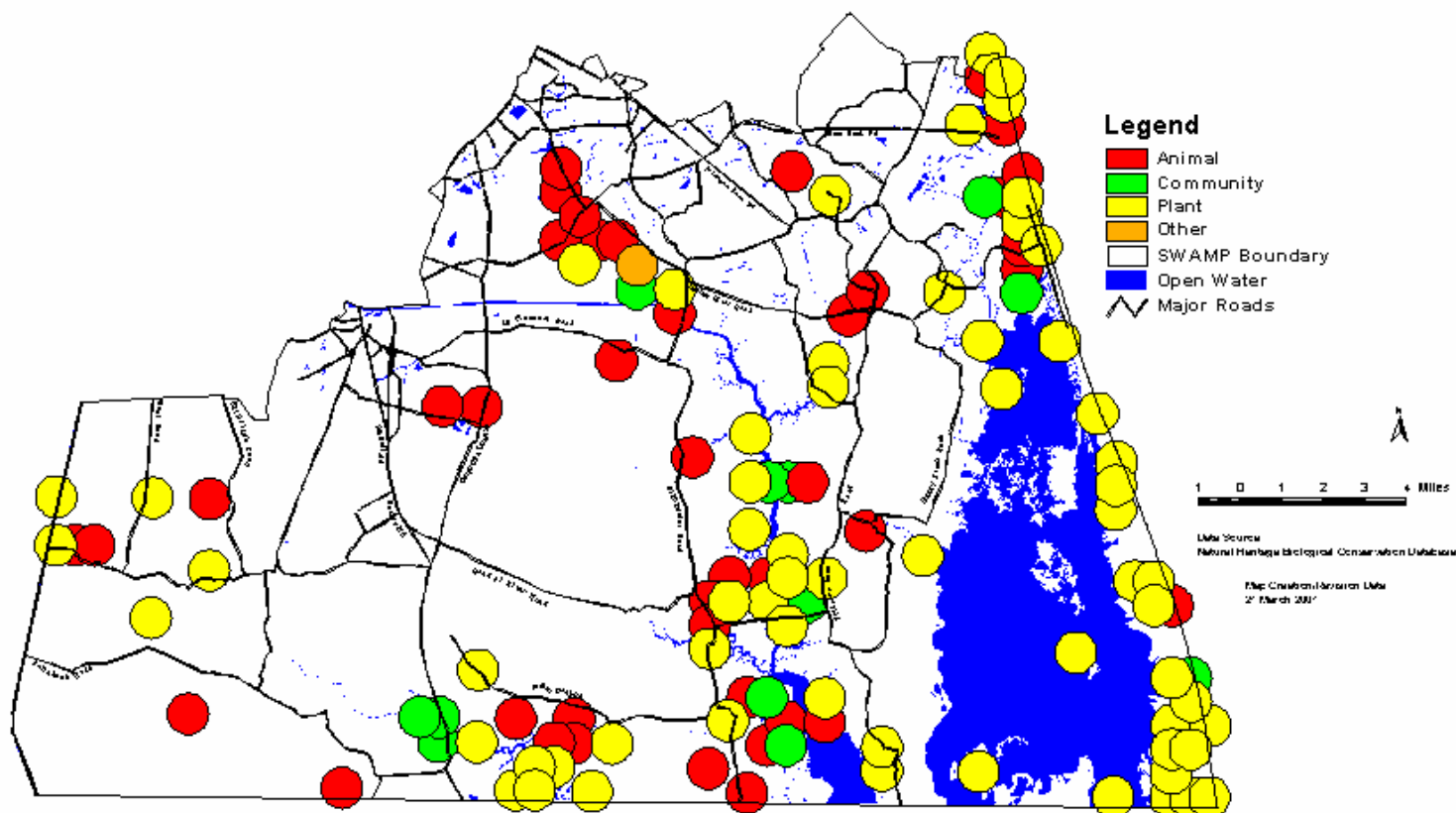
Location of the Southern Watershed Area





Natural Heritage Element Occurrences

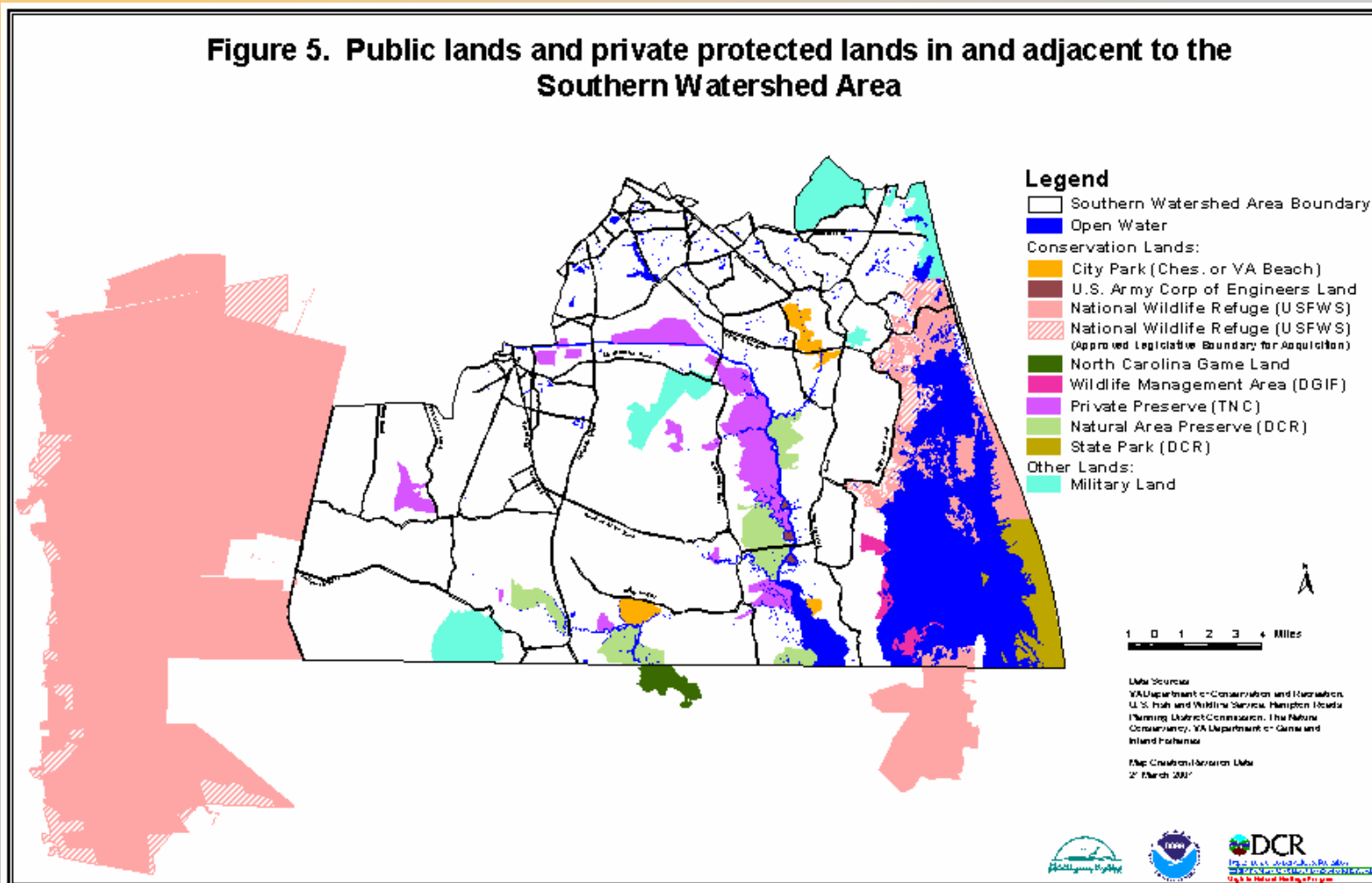
Figure 2. Locations of natural heritage element occurrences in the Southern Watershed Area





Protected Lands

Figure 5. Public lands and private protected lands in and adjacent to the Southern Watershed Area





Multiple Benefits Approach



Riparian corridors providing multiple benefits:

- Water quantity management and water quality protection
- Wildlife habitat enhancement and Natural Heritage Resource protection
- Compatible recreation and tourism opportunities
- Environmental education opportunities
- Potential wetlands compensation capability





Implementation

Wetlands Mitigation MOA
Chesapeake PDR Program
Chesapeake and Virginia Beach
Comprehensive Plans
Land Purchase to Augment Corridor
System





Wetlands Mitigation MOA

Identify a set of riparian based conservation corridors and benefits associated with proper management

Employ the shared methodology for selecting wetlands compensation sites

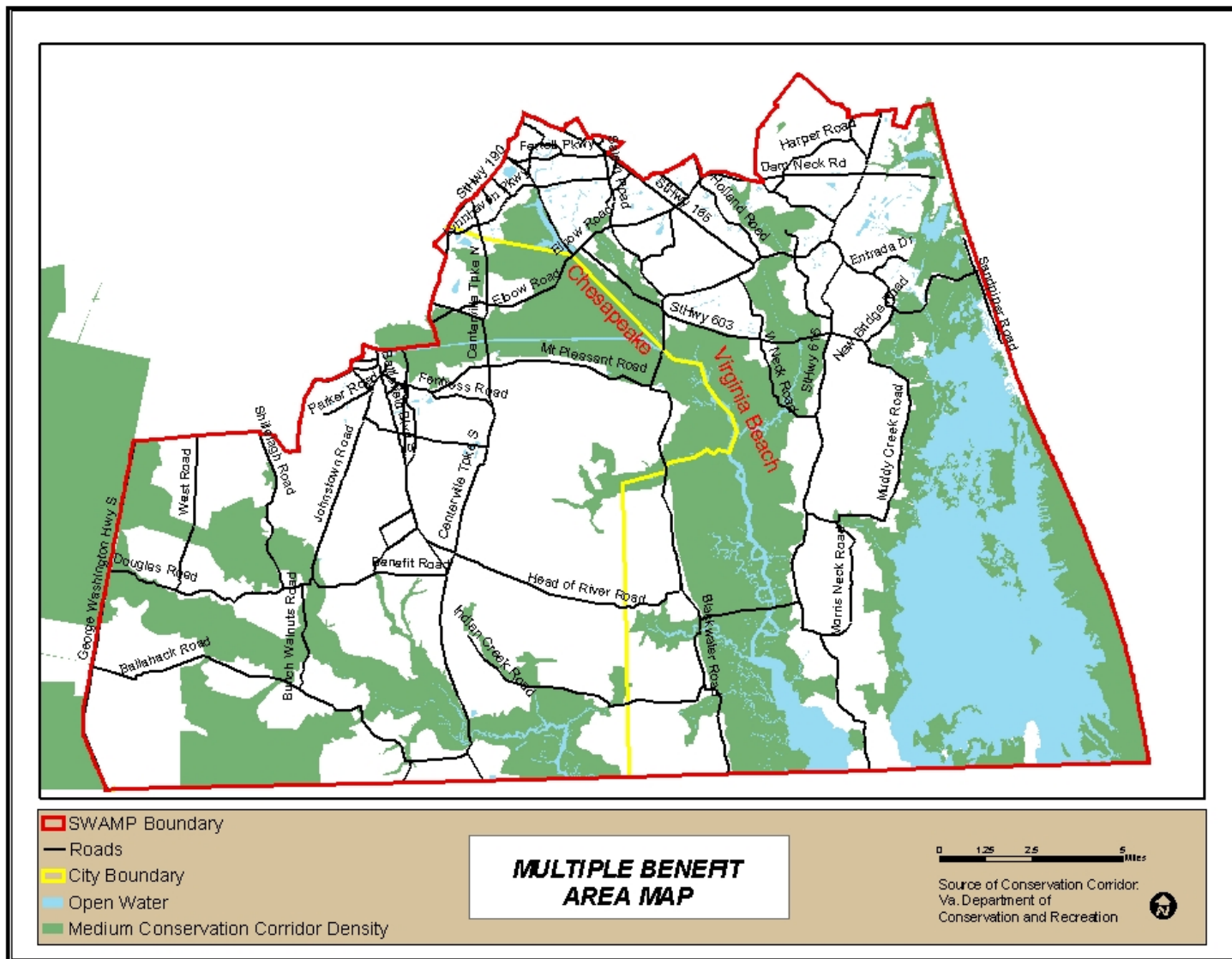
Continue to refine the multiple benefits site selection process based on experience in analyzing mitigation site options

Improve coordination and sharing of information among the agencies involved in the wetlands mitigation process





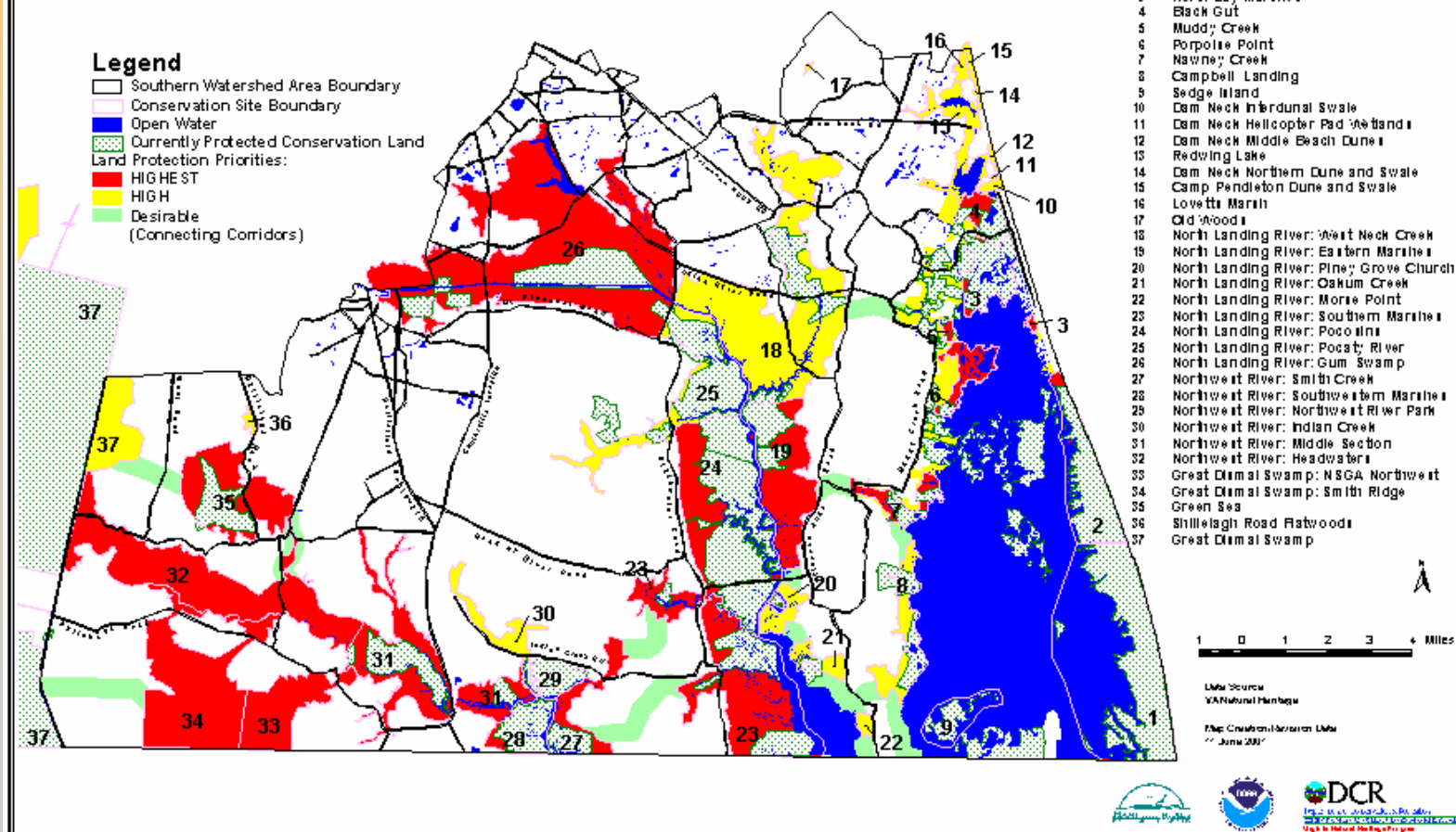
Corridor System





Land Protection Priorities

Figure 13. Lands targeted for protection in the Southern Watershed Area





Signatory Agencies

Cities of Chesapeake and Virginia Beach

HRPDC – Hampton Roads Planning District Commission

Virginia Dare SWCD – Soil and Water Conservation District

VDCR – Department of Conservation and Recreation

VDEQ – Virginia Department of Environmental Quality

VDGIF – Virginia Department of Game and Inland Fisheries

VMRC – Virginia Marine Resources Commission

VDOT, Virginia Department of Transportation

NRCS – Natural Resources Conservation Service

NMFS – National Marine Fisheries Service

USACE – U.S. Army Corps of Engineers

USFWS – U.S. Fish and Wildlife Service

TNC – The Nature Conservancy





Southeastern Parkway Mitigation Package

Evolving mitigation package uses the multiple benefits approach developed in SWAMP

Primary goals include augmentation of the conservation corridor system and buffering of Oceana and Fentress



Chesapeake 2026 Comprehensive Plan



Future Land Use map includes the majority of the conservation corridor system as conservation land

Natural Resources chapter uses the conservation corridor system as the basis for identifying conservation areas





Chesapeake 2026 Comprehensive Plan

“Conservation corridors will be preserved based on the recommended conservation corridors contained in the City’s Southern Watershed Conservation Plan and Chesapeake Bay Preservation Area program. This action would o q n u h c d ` k n f h b ` k + r b conservation corridor design, because these programs have identified the most environmentally sensitive areas.”



Chesapeake PDR Program

The City of Chesapeake Open Space and Agricultural Preservation Program (OSAP) uses proximity to the conservation corridor system as one element in evaluating parcels submitted to the program.

The OSAP Program is funded through roll back taxes, street closure fees, sale of surplus properties and excess mosquito control funds.





Land Purchase



The City of Virginia Beach purchased the land surrounding Stumpy Lake protecting one of the highest priority sites in the corridor system.

The Cities of Chesapeake and Virginia Beach currently have an application pending for CELCP funding to purchase a set of six parcels in and adjacent to the corridor system.






Back Bay National Wildlife Refuge continues to purchase land in the Back Bay watershed.

The Nature Conservancy continues to purchase land in the Northwest River watershed.



Southern Watershed Area Management Program

Map 2

-  Southern Watershed Boundary
-  Land acquisition candidates
-  SWAMP Conservation Corridor
-  Existing Protected Lands
-  Jurisdiction Boundaries



0 1 2 Miles

December 2005



Chesapeake

Virginia Beach

Atlantic Ocean

Back Bay

Site #1
Site #2
Site #3
Site #4
Site #5
Site #6



Regional Green Infrastructure Project



Project Overview

Obtained grant from the Virginia Coastal Program based on the success of the SWAMP project

Worked with all localities in the HRPDC to develop a corridor system that fits with local planning goals

Corridor system is a framework to prioritize and potentially link several categories of open lands





Goals for the Project

Determine local planning needs

Identify a corridor system that provides multiple benefits:

- Habitat protection
- Stormwater management
- Wetlands Mitigation
- TMDL & Tributaries Strategy compliance
- Comprehensive Planning
- Recreation/Tourism

Provide GIS mapping of corridor system to localities





Educate public on benefits of the corridor system

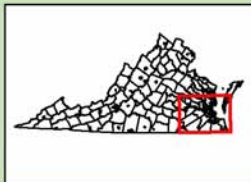
Figure 7 The Hampton Roads Conservation Corridor Study

Legend

 Opportunities for Connectivity

Suitability for Conservation

-  Low suitability
-  High suitability - WATER QUALITY
-  High suitability - HABITAT
-  High suitability - BOTH



Notes:

The Suitability for Conservation information identifies areas that are potentially most suitable for protection based on a wildlife habitat or water quality protection perspective. The suitability information was derived through weighted overlay analysis in GIS using the following data sources: National Land Cover Dataset, National Wetlands Inventory, riparian corridors, and the Virginia Land Conservation Needs Assessment habitat cones. The map was refined based on the input from natural resource experts in the Hampton Roads region.

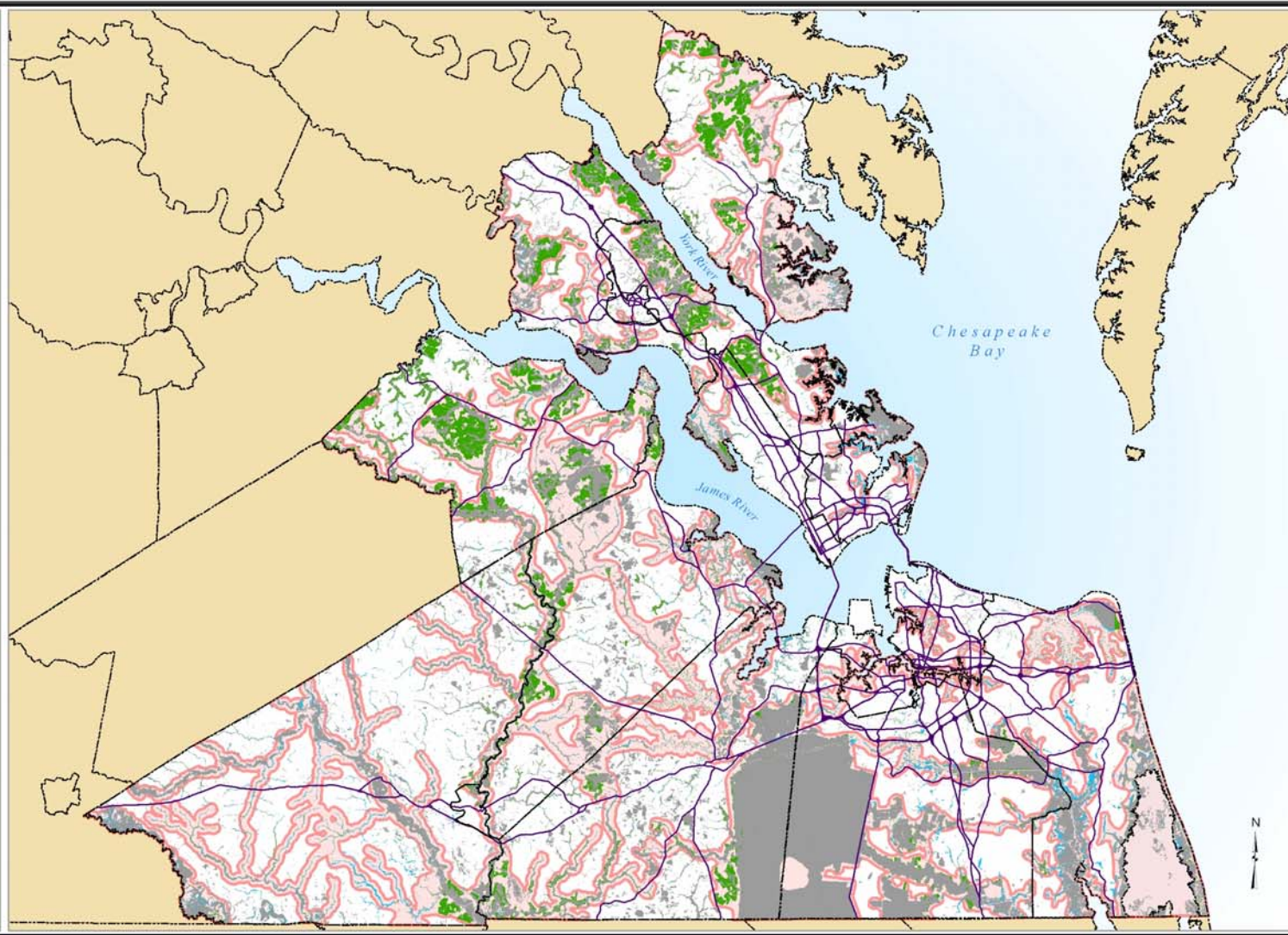
The Opportunities for Connectivity information highlights areas where there are opportunities to create a linked network of green infrastructure in Hampton Roads. Protected and unprotected green spaces can be linked to each other, as well as to existing recreational areas.

This map is intended as a tool to aid the regional planning process and does not necessarily reflect the actual future land use plans of individual Hampton Roads localities.



0 5 10 20 Miles

May 2006





Implementation

Land Acquisition

Green Infrastructure Workshops

Total Maximum Daily Load Implementation
Plans

Stormwater Management Programs

Military Base Encroachment

Southampton County Comprehensive Plan

Green Infrastructure Summary Report

Future Actions





New Conservation Lands Acquired in HR

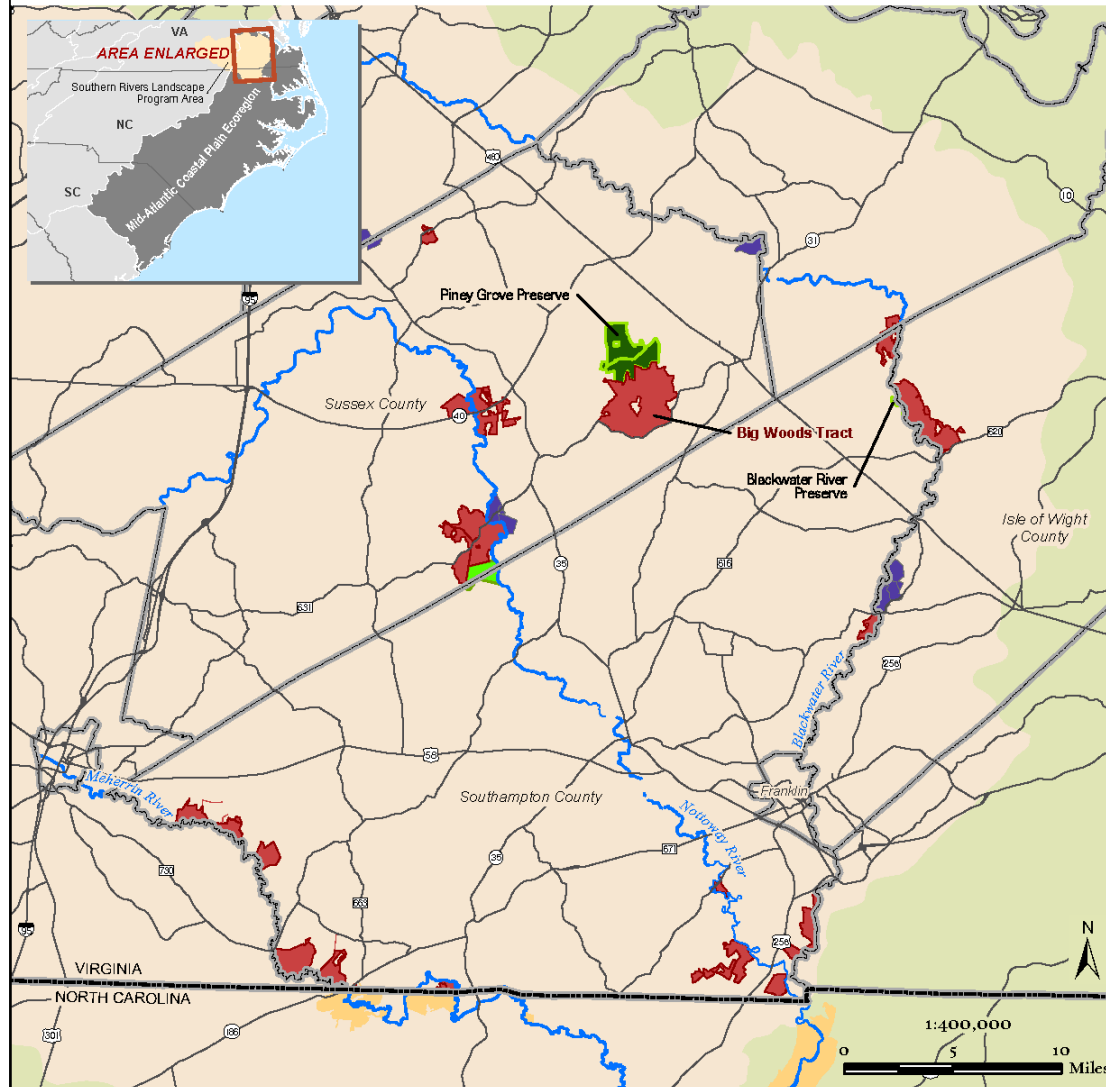
Agreement between International Paper, The Nature Conservancy & The Conservation Fund to protect 218,000 acres in the southeastern U.S.

20,000 acres protected in Sussex, Surry, Southampton, and Isle of Wight Counties by TCF

All tracts fall into the HR Conservation Corridor



Southern Forests Conservation Project



March 23, 2006

- | | |
|--|--|
| IP Tract | County Boundary |
| IP Tract (North Carolina) | State Boundary |
| TNC Preserve | Primary Road |
| TNC Easement | Southern Rivers Landscape Program Area |
| State Natural Area Preserve | |
| River | |

Map Created by C. Bruce, Charlottesville Office, VA

Data Sources:
IP Tract, IP (2005);
TNC Preserve/Easement, TNC (2005)
State Natural Area Preserve, (VA-DCR, 2005)
State/County Boundary, USGS (2002)
Roads, ESRI (2005); Stream/River, USGS (2005)

Projection: UTM zone 18, NAD83



Total Maximum Daily Loads



Total Maximum Daily Load

Definition: Maximum amount of a pollutant that a waterbody can receive and still maintain its designated use.

In effect: Planning tool to develop pollution reduction goals in order to improve water quality in impaired waterbodies.

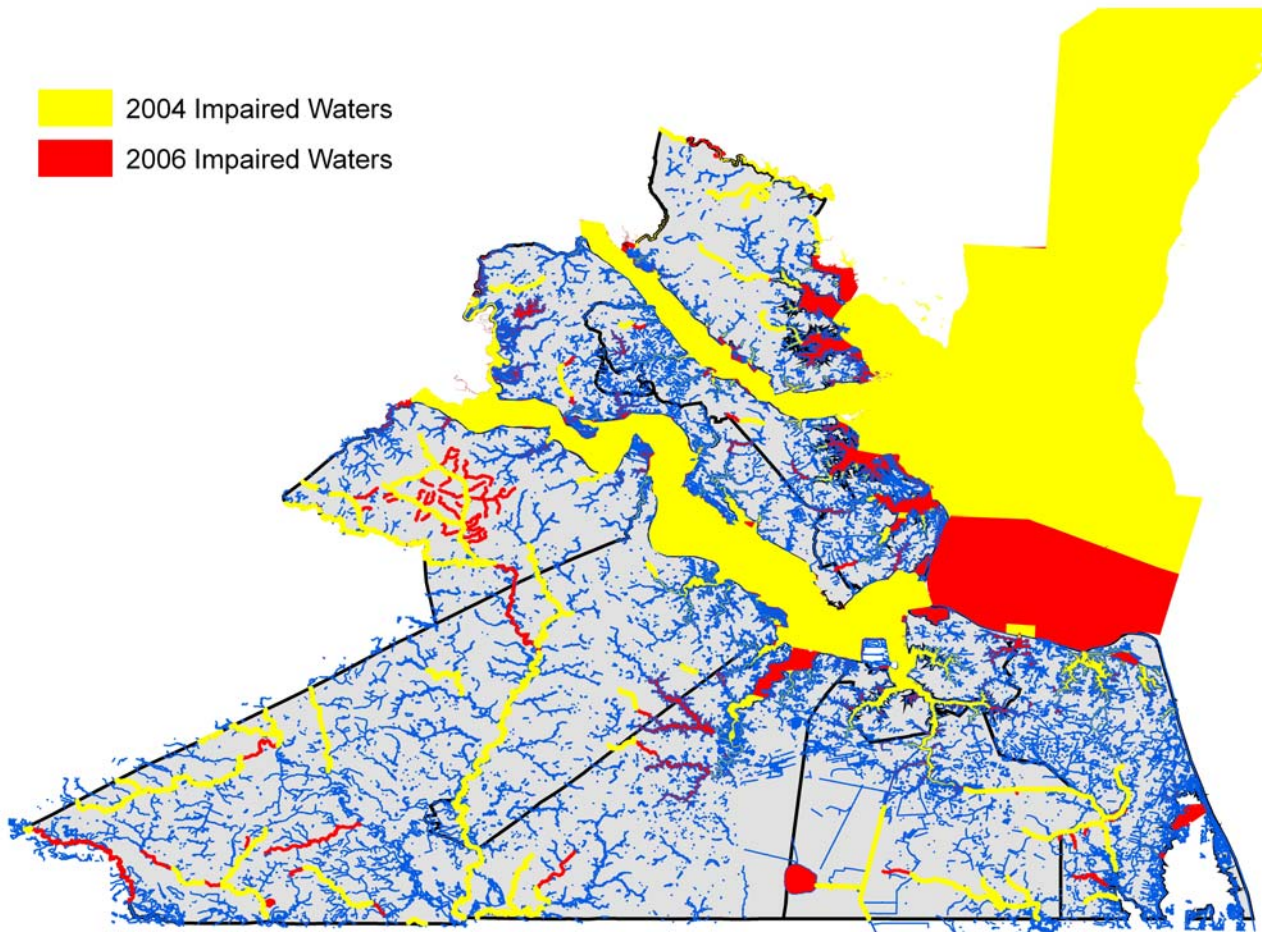




Impaired Waters in Hampton Roads



- 2004 Impaired Waters
- 2006 Impaired Waters





Use of Green Infrastructure in TMDL Implementation Plans



Many of the problems associated with the implementation of the problem in Hampton Roads

Additional measures will be required

In many cases green infrastructure provides a cost effective alternative to engineered stormwater BMPs



Military Base Encroachment



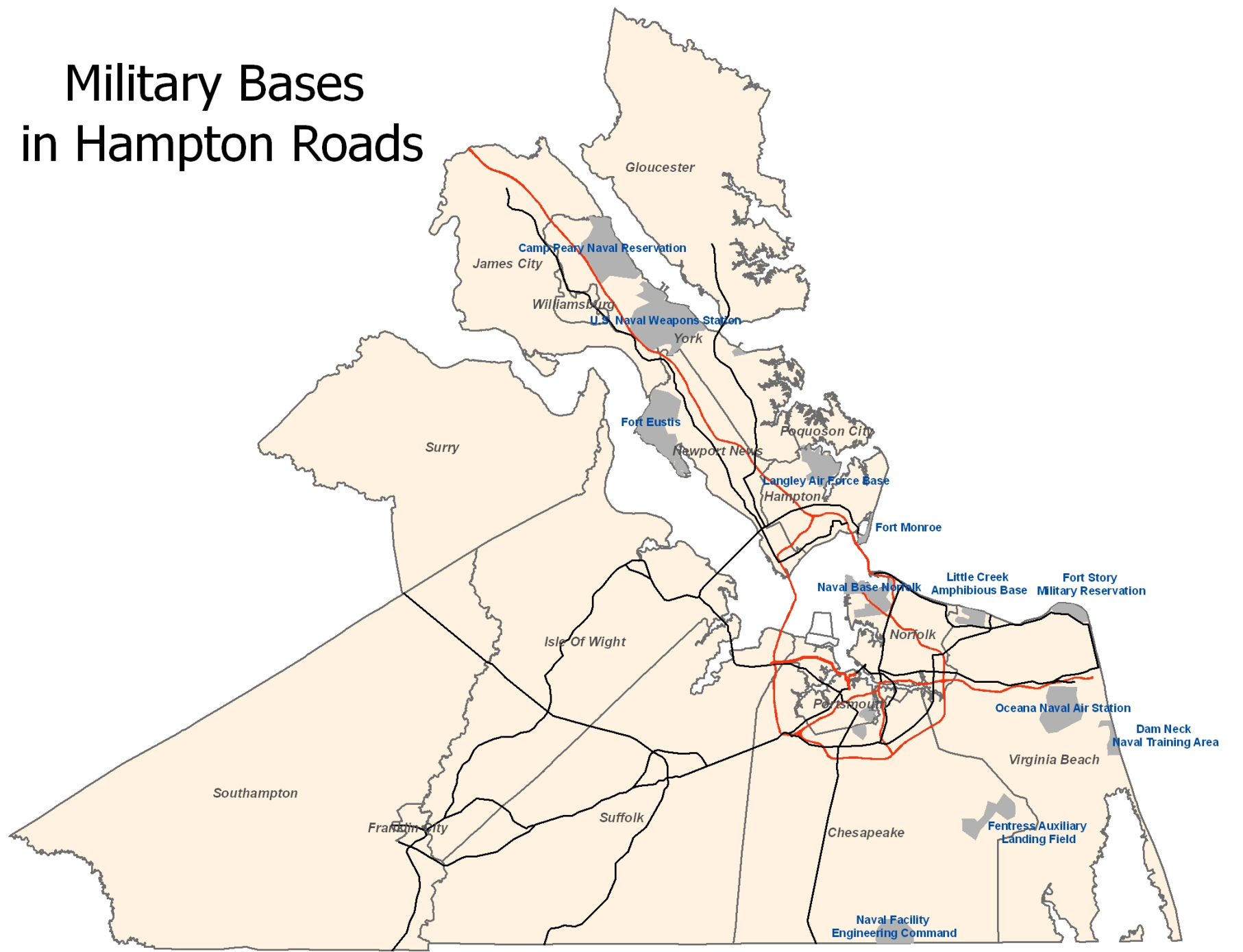
Hampton Roads is home to a large number of military facilities

Military employment and associated business and industry are mainstays of the economy

Long term viability of these facilities is threatened by encroachment of development



Military Bases in Hampton Roads





Hampton Roads Joint Land Use Study



The Hampton Roads Joint Land Use Study (JLUS) was intended to explore solutions to encroachment on several military facilities.



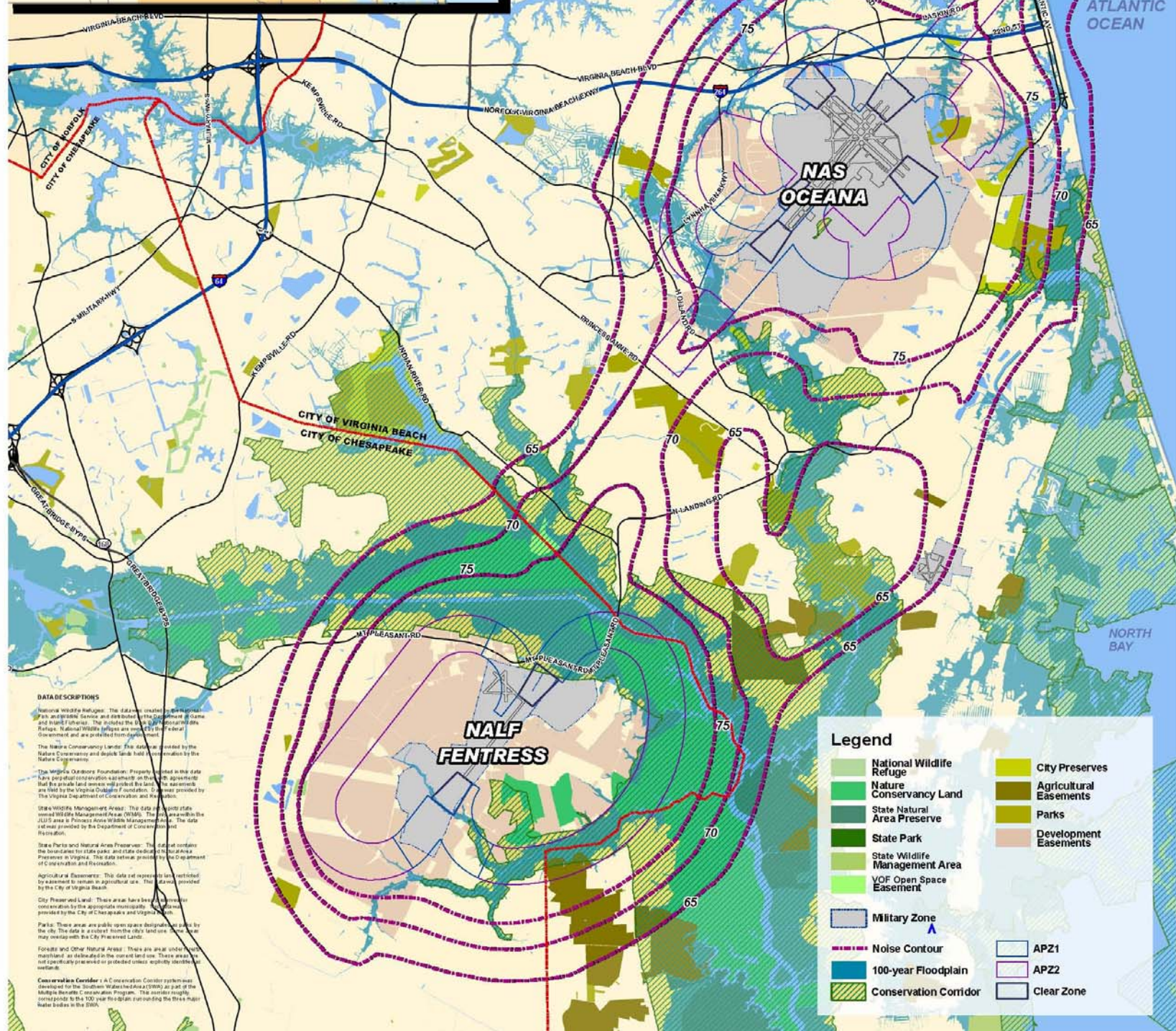
The JLUS includes a green infrastructure component.



The conservation corridor network includes critical lands between Oceana Naval Air Station and Fentress.

Identified actions in the JLUS include purchase of easements and rezoning of these lands to preclude incompatible development.





Legend

- | | |
|--------------------------------|------------------------|
| National Wildlife Refuge | City Preserves |
| Nature Conservancy Land | Agricultural Easements |
| State Natural Area Preserve | Parks |
| State Park | Development Easements |
| State Wildlife Management Area | |
| VOF Open Space Easement | |
| Military Zone | |
| Noise Contour | APZ1 |
| 100-year Floodplain | APZ2 |
| Conservation Corridor | Clear Zone |



Southampton County Comprehensive Plan



The recently completed Southampton County Comprehensive Plan includes a map of the portion of the regional green infrastructure network contained within the County.

The future land use map includes substantial portions of the green infrastructure as conservation lands.





Green Infrastructure Summary Report

Report title is Green Infrastructure in Hampton Roads

Introduction to Green Infrastructure

Synopsis of previous efforts

- SWAMP
- HRCCS
- Workshops

Case Studies

Recommended Future Actions

(Report is available on the HRPDC web site:
<http://www.hrpdc.org/newpep/HRCCS.shtml>)





Future Actions

White paper on the integration of green infrastructure implementation with the development approval process

Workshop on the use of green infrastructure to deal with encroachment of development on military bases

Integration of green infrastructure implementation with stormwater management and associated regulatory compliance



Future Actions

Continued refinement of the regional conservation corridor network

Identify and prioritize areas for implementation within the regional conservation corridor network for implementation action

Possible development of a regional parks plan

Possible development of a regional agriculture and forestry protection plan



Future Actions



Continue efforts to ensure integration of
the Hampton Roads Conservation Corridor
management and
initiatives





Future Actions

Development of a long term financing strategy for green infrastructure in Hampton Roads

Continue public education efforts